

# Can editorial peer review survive in a digital environment?

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Information

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# Overview

- Traditional models of peer review
- Electronic publishing
- New peer review models in an electric environment
  - Pre-print repositories
  - Open access journals
  - Unpublished data

# Traditional peer review

- Editor sends the manuscripts to two or three reviewers.
- Reviewers recommend to accept, accept with revisions, or reject.
- Editor decides if they will accept the recommendation of the reviewers.

# Traditional peer review

- If reviewers disagree,
  - Send the manuscript for more review
  - Editor adjudicates and decides to accept or reject.
- If a manuscript is rejected
  - Author can submit it to another journal.

# Biochemistry ACS

Instructions to authors:

Editorial Organization and Reviewing  
Process

# Electronic environment

- Electronic journals
- Electronic process for peer review
- Different models for peer review in electronic environment

# *Online Journal of Current Clinical Trials*

- Began in 1991
- First: peer reviewed health sciences online journal
- First: to be indexed in Index Medicus, now PubMed
- Ended in 1996
- Today - no easy access to the 52 articles

# Peer reviewed e-journals in PubMed: 2004 ~ 195 titles ~

NLM LocatorPlus

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**Database Name:** National Library of Medicine  
 Search Request: Advanced Menu = (electronic)[ in Keyword Anywhere ]AND(resource)[ in Keyword Anywhere ]AND(PubMed)[ in Keyword Anywhere ]  
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< previous 1 21 41 61 81 101 ... 181 next >

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<input type="checkbox"/> [4]	<a href="#">AIDSLINE [electronic resource] / National Library of Medicine.</a> Library Location: Invalid Internet Call Number: <a href="#">Electronic link: no longer valid</a>



# CAS electronic journals

## ~ 167 titles ~



### Online-Only Journals Monitored by CAS

- ◆ [AAPS PharmSciTech](#)
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- ◆ [African Journal of Biotechnology](#)
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# Electronic publishing: changes in the peer review process

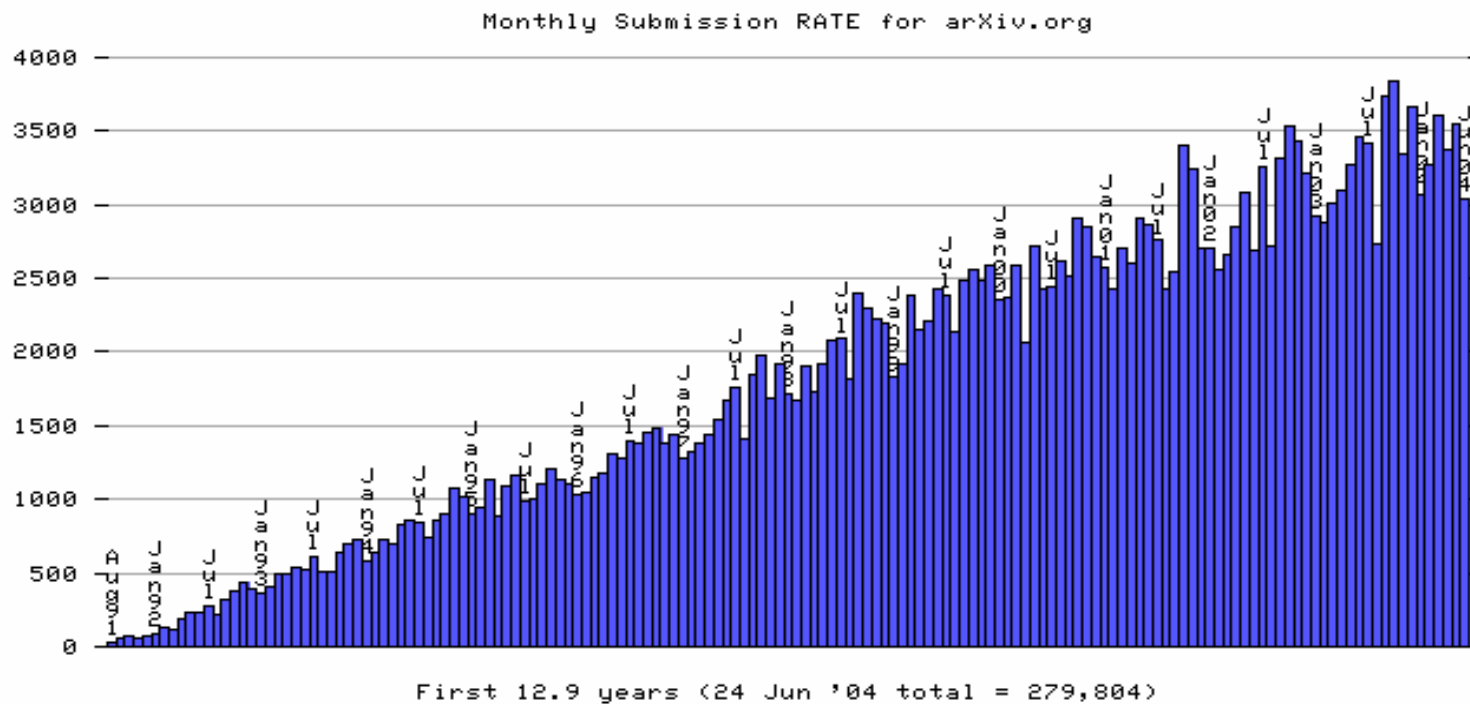
- Preprint archives
- Open access:
  - SPARC
  - PubMed Central
  - BioMed Central
  - PLoS
  - Chemistry example

# Physics e-print archives

- Began for High Energy Physics – 1991
- For a subcommunity of 200 physicists
- “In some fields of physics, open (i.e. unrefereed) distribution of research can work well and has advantages for researchers both in developed and undeveloped countries.”
  - ~ P. Ginsparg 1996

# Physics archives submissions 1991- June 2004

## [arXiv.org](http://arxiv.org) monthly submission rate statistics



Blue - Number of new submissions received during each month since Aug '91

# Chemistry Preprints

## 835 articles

the chemistry preprint server

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logged in - 16 August 2004, 14:57 (GMT)

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**IMPORTANT ANNOUNCEMENT**

We regret to announce that the Chemistry Preprint Server (CPS) has stopped accepting new submissions from 24 May 2004.

The CPS will remain a freely available and permanent web archive for those chemistry research articles already submitted.

Please click here to [Browse](#) or [Search](#) through the 891 articles submitted between July 2000 and May 2004.

Despite the wide readership of CPS preprints, the chemistry community has unfortunately not contributed articles or online comments to this service in sufficient numbers to justify further development. The decision has therefore been taken to stop the processing of any further submissions.

We sincerely thank the many enthusiastic supporters of the CPS, notably the contributing authors who have chosen to highlight their work via this medium. We also thank the advisory board for their guidance. Elsevier has been pleased to support this pioneering initiative from its inception.

Best wishes with your research!

The CPS Team  
[preprint@chemweb.com](mailto:preprint@chemweb.com)

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CPS Disclaimer

# Chemistry Pre-Prints

- Chemists have been reluctant to produce pre-print files because they could be viewed as ‘unallowable’ for research assessment or tenure.
  - ~ Warr, *Journal of Chemical Information and Computer Sciences*, 2003
- Only 6% of editors of chemistry journals allow publication of articles that have previously appeared in electronic pre-print files
  - ~ Brown, *Journal of the American Society for Information Science and Technology*, 2003

# SPARC

- SPARC®, the Scholarly Publishing and Academic Resources Coalition, is an alliance of universities, research libraries, and organizations built as a constructive response to marketing issues in scholarly publishing.

# Directory of Open Access Journals

- Covers free, full text, quality controlled scientific and scholarly journals.
- In June, 2004 there were **1134** journals in the directory. Currently **297** journals are searchable on article level with over 50,000 articles searchable



# Directory of Open Access Journals

## ■ Chemistry

Analytical Chemistry (1 journal)

Chemical Engineering (5 journals)

Chemistry (General) (30 journals)

Inorganic Chemistry (1 journal)

Organic Chemistry (1 journal)

# SPARC and NIH

- SPARC ® and several major U.S. library organizations sent a letter in January 2004 to NIH Director Dr. Zerhouni urging NIH to support publishing in open access journals as part of their research grants.

# Research funds and open access

- Before congress: a recommendation that NIH implement a policy to make research articles available to the public free of charge.
- This would apply to NIH-federally funded research as of FY 2005 and would include the authors' final manuscripts including supplemental materials.
- The current plan is to use PubMed Central.



## NIH research to be open access

Publishers and editors meet Zerhouni plans for publicly available papers with exasperation | [By Paula Park](#)

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Print Renewals ::



WASHINGTON, DC—National Institutes of Health (NIH) director Elias Zerhouni indicated at a gathering of 43 scientific journal publishers and editors Wednesday (July 28) that eventually all NIH-financed research will be freely available to the public.

Zerhouni stopped short of setting deadlines for depositing full-text materials in the searchable PubMed database, as recommended in a House Appropriations Committee [report](#) released earlier this month. Instead, he asked the publishing executives to inform him how best to manage material so that the public can freely use it.

"The public needs to have access to what they've paid for," Zerhouni told commercial and nonprofit publishing executives at a meeting he called on the NIH campus. Congress, he said, also demanded evidence of the agency's productivity. "I need to manage the portfolio," he said. "The status quo just can't stand."

The executive conference was the first of several planned meetings that will lead to the creation of an approach public access, which NIH will publish in the Federal Register for comment before it becomes official policy, Zerhouni said. He would not say when the policy-making would begin, but the Appropriations Committee report requested that NIH produce some language by December 1.

# PubMed Central

- A digital archive of life sciences journals, developed and managed by the National Center for Biotechnology Information (NCBI)

# PubMed Central

- PubMed Central does not include any unreviewed research or pre-print articles.
- Participating journals must include all its peer-reviewed primary research articles.

# BioMed Central

- Rapid peer review:

Online peer review process means an initial decision within six weeks.

- BMC Biochemistry:

Submitted articles: reviewed by two experts with the aim of reaching a first decision as soon as possible. Reviewers do not have to sign their reports, but are welcome to.

# BioMed Central: authors' feedback

The Open Access Publisher



“ publication speed was awesome ”

*Michael Costigan*

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## ■ Comments from authors about BioMed Central

BioMed Central journals aim to provide the highest possible standards of service to authors. Here is just some of the feedback we have received from authors, about the efficiency and quality of our journals' editorial processes:

*“It has been a pleasure to submit our manuscript to Breast Cancer Research. Everything has been simple, quick, and smooth, which is exactly what one wishes for.”*

Sara Wedren

Karolinska Institutet

Sweden

***Breast Cancer Research***



# BioMed Central – new model

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## Pre-publication history for:

A randomized, placebo controlled, trial of preoperative sustained release Betamethasone plus non-controlled intraoperative Ketorolac or Fentanyl on pain after diagnostic laparoscopy or laparoscopic tubal ligation [ISRCTN52633712]

Warren P Bagley ✉, A Audie Smith ✉, Jessie D Hebert ✉, Carolyn C Snider ✉, Gary A Sega ✉, Marsha D Piller ✉, Paula C Carney ✉ and Roger C

✉  
*BMC Anesthesiology* 2003, 3:3 doi:10.1186/1471-2253-3-3

## Pre-publication versions of this article and reviewers' reports

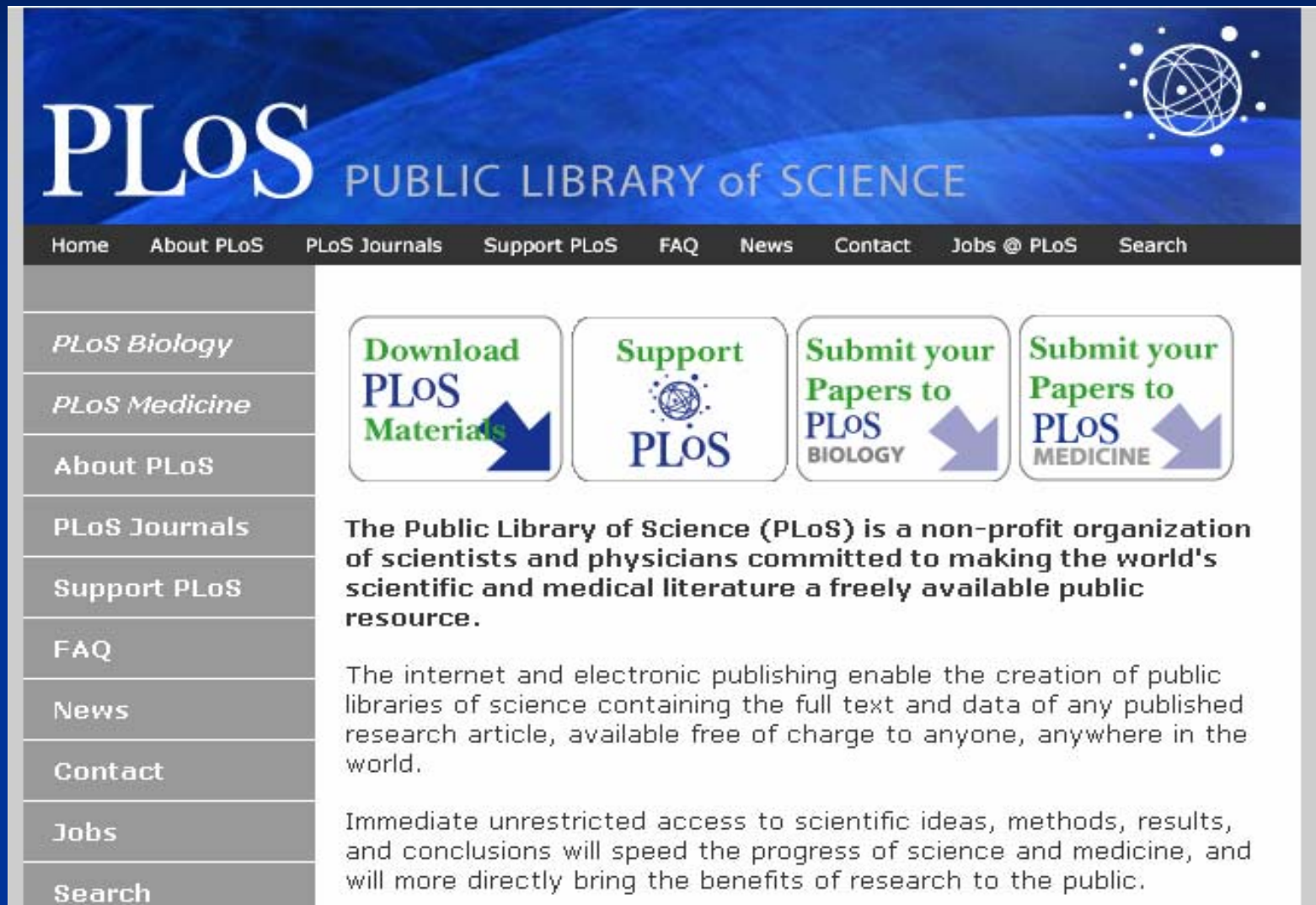
Original submission - Version 1	<a href="#">Manuscript</a>		19 Mar 2003
Resubmission - Version 2	<a href="#">Manuscript</a>		19 Mar 2003
Reviewer's Report	<a href="#">John Hughes</a>		29 Apr 2003
Reviewer's Report	<a href="#">Andrew R. Willan</a>		29 May 2003
Reviewer's Report	<a href="#">Peter Norman</a>		16 Jun 2003
Resubmission - Version 3	<a href="#">Manuscript</a>		08 Jul 2003
Reviewer's Report	<a href="#">John Hughes</a>		22 Jul 2003
Reviewer's Report	<a href="#">Andrew R. Willan</a>		28 Jul 2003
Resubmission - Version 4	<a href="#">Manuscript</a>	<a href="#">Authors' comments</a>	01 Aug 2003
Reviewer's Report	<a href="#">Andrew R. Willan</a>		12 Aug 2003
Resubmission - Version 5	<a href="#">Manuscript</a>	<a href="#">Authors' comments</a>	19 Aug 2003
Accepted			21 Aug 2003

BioMed Central's entire corpus of 3500+ open access research articles is available for download

## BioMed Central – new model

- Authors pay: \$525 per article
- Large institution pay: \$6,448
- Reviews published

# PLOS



The image shows a screenshot of the PLOS website homepage. The background is a blue gradient with a globe icon in the top right corner. The main header features the PLOS logo and the text "PUBLIC LIBRARY of SCIENCE". Below the header is a navigation bar with links: Home, About PLoS, PLoS Journals, Support PLoS, FAQ, News, Contact, Jobs @ PLoS, and Search. A left sidebar contains a list of links: PLoS Biology, PLoS Medicine, About PLoS, PLoS Journals, Support PLoS, FAQ, News, Contact, Jobs, and Search. The main content area contains four buttons: "Download PLoS Materials", "Support PLoS", "Submit your Papers to PLoS BIOLOGY", and "Submit your Papers to PLoS MEDICINE". Below these buttons is a paragraph defining PLOS as a non-profit organization of scientists and physicians committed to making the world's scientific and medical literature a freely available public resource. This is followed by two paragraphs: one explaining that the internet and electronic publishing enable the creation of public libraries of science, and another stating that immediate unrestricted access to scientific ideas, methods, results, and conclusions will speed the progress of science and medicine, and will more directly bring the benefits of research to the public.

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Immediate unrestricted access to scientific ideas, methods, results, and conclusions will speed the progress of science and medicine, and will more directly bring the benefits of research to the public.

# PLoS

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- Under the open access model, “PLoS makes all published works immediately available online, with no charges for access and no restrictions on subsequent redistribution or use”.

# PLoS – Open Access NY Times

June 26, 2004

## A Quiet Revolt Puts Costly Journals on Web



Jim Wallace/Duke University

An owl monkey of the kind Dr. Miguel Nicolelis used in his research, which he published first on the Web.

By PAMELA BURDMAN

Published: June 26, 2004

**W**hen Dr. Miguel Nicolelis, a neurobiologist at Duke University, decided to release a groundbreaking study in an upstart online journal, his colleagues were flabbergasted. The research, demonstrating how brain implants enabled monkeys to operate a robotic arm, was a shoo-in for acceptance in premier journals like Nature or Science.

"Usually you want to publish your best work in well-established journals to have the widest possible penetration," Dr. Nicolelis said. "My idea was the opposite. We need to open up the dissemination of scientific results." The journal Dr. Nicolelis chose — PLoS Biology, a publication of the Public Library of Science — aims to do just that by putting peer-reviewed scientific papers online free, at the Web site

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# Chemistry – open access

*Atmospheric Chemistry and Physics (ACP) &  
Atmospheric Chemistry and Physics Discussions (ACPD)*

Executive Editors: Ulrich Pöschl, Ken S. Carslaw, Thomas Koop, Rolf Sander, William T. Sturges

Editorial and Advisory Board

ISSN *ACP*: 1680-7316 (Paper) 1680-7324 (Online)

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# Atmospheric Chemistry and Physics

Two-stage process:

- *Atmospheric Chemistry and Physics Discussions (ACPD)*
- Publication in, *Atmospheric Chemistry and Physics (ACP)*

# Atmospheric Chemistry and Physics

- 1. Submission of Original Manuscript
- 2. Access Peer-Review (~2 weeks)
- 3. Authors' Technical Corrections (~2 weeks)
- 4. Publication of Discussion Paper in *ACPD*
- 5. Open Discussion (8 weeks)
- 6. Final Response. Authors given 4-8 weeks
- 7. Submission of Revised Manuscript
- 8. Peer-Review Completion



# Atmospheric Chemistry and Physics

- After peer-review and interactive public discussion, the editor either directly accepts/rejects
- 9. Publication of Final Revised Paper in *ACP*.  
(original paper, interactive comments, final revised paper) are permanently archived and remain accessible to the open public via internet, CD-ROM and print copies of both *ACPD* and *ACP*.

# Atmospheric Chemistry and Physics

## Interactive Discussion

### Discussion Paper

<i>Publication Date</i>	<i>Title, Authors, Reference</i>	<i>Online Access</i>
19.02.2004	<b>Real-time measurements of ammonia, acidic trace gases and water-soluble inorganic aerosol species at a rural site in the Amazon Basin</b> I. Trebs, F. X. Meixner, J. Slanina, R. Otjes, P. Jongejan, M. O. Andreae <i>Atmospheric Chemistry and Physics Discussions</i> , 4, 1203-1246, 2004 SRRef-ID: 1680-7375/acpd/2004-4-1203	<a href="#">Abstract</a> <a href="#">Online Version (PDF, 1584 KB)</a> <a href="#">Print Version (PDF, 1378 KB)</a> <a href="#">Final Revised Version</a> <a href="#">SRef Overview</a>

### Interactive Discussion

**Status:** Closed



**AC:** Author Comment (on behalf of all co-authors)



**RC:** Referee Comment (anonymous or attributed)

**SC:** Short Comment (attributed)

 Online Version (PDF)



 Print Version (PDF)


RC S229 : 'Review of Trebs et al. "Real-tim...', Anonymous Referee #2, 10.03.2004, 16:42  



AC S725 : 'Reply to anonymous Referee #2', Ivonne Trebs, 14.05.2004, 13:21  

RC S449 : 'Referee comment to MS-NR: 2003-144', Anonymous Referee #1, 08.04.2004, 7:34  

AC S722 : 'Reply to anonymous Referee #1', Ivonne Trebs, 14.05.2004, 13:10  

EC S669 : 'from reviewer #3', Scot Martin, 07.05.2004, 0:34  

AC S744 : 'Reply to S. Martin (Editor)', Ivonne Trebs, 18.05.2004, 18:24  

EC S748 : 'clarification on author of...', Scot Martin, 18.05.2004, 18:49  

# New Models:

## Unpublished, unpeer reviewed data

- Recent news reports of pharmaceutical companies making data available on the Web:
  - GlaxoSmithKlein, the manufacturer of the antidepressant Paxil
  - Merck, registry of drug trials

# New models: unpublished drug data on Web

NPR – June 15, 2004



The screenshot shows the NPR website interface. At the top left is the NPR logo. To its right is a navigation menu with a dropdown menu set to "Programs and Schedules" and a "select" button. Further right is a search box. Below the logo is a sidebar with a search for local member stations, a "find" button, and a list of categories: News, Politics, Iraq, Health & Science, Books, Music, and Movies. The main content area features a link to "E-mail this page", a headline "Paxil Maker Publishes Study on Children and Antidepressants", a link to "All Things Considered audio", and a date "June 15, 2004". The article text discusses GlaxoSmithKlein's release of unpublished clinical test reports for Paxil in children and adolescents.

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### Paxil Maker Publishes Study on Children and Antidepressants

**June 15, 2004**

GlaxoSmithKlein, the manufacturer of the antidepressant Paxil, has released on its company Web site reports of unpublished clinical tests of that drug in children and adolescents suffering from depression. Paxil is not approved for use in children but some doctors have prescribed it off label. SmithKline officials have denied that they selectively disclosed clinical trial findings. This is the first time that this data on Paxil have been made public and [NPR's Joanne Silberner](#) looks at whether it will give a different picture of the safety and efficacy of the drug.

# New models: unpublished drug data on Web

New York Times – June 18, 2004

## Merck Backs U.S. Database to Track Drug Trials

By **BARRY MEIER**

Published: June 18, 2004

[Company Incorporated"/>Merck](#), one of the world's leading pharmaceutical companies, says it supports the idea of a government-run database that would keep track of all late-stage clinical drug trials from start to finish.

The position by Merck, which the company disclosed in an interview yesterday, is apparently the first major sign of pharmaceutical industry support for such a comprehensive database. Doctors' groups and medical journal publishers have lately called for such a database - or trial registry, as it is also termed - to make it easier to track the results of drug trials. Under the current system of trials, which are typically financed by drug makers, results unfavorable to the companies may never be widely circulated.

# New Models

- What is new?
  - Speed
  - Non-print formats
  - Easy Access
  - New pricing structures
  - More data
  - More non-peer-reviewed data
  - Unlimited space for journals

# New Models

- For peer review:
  - Open peer review
  - Open online discussions before final version
  - Consultative peer review
  - Publication of several versions of a manuscript

# New Models

- What's not new?
  - Science
  - Scholarship
  - Different models work for different disciplines
  - Structure of scientific articles



# Scientific articles

After publishing an update of an article on smoking habits of doctors written 50 years ago:

“The overriding impression is that little has changed in the last 50 years”

Richard Smith, Editor BMJ, June 26, 2004

# Peer review in an electronic environment

## Big issues:

- Correct science
- Speed and space
- Cost – there is a cost to Open Access
- Permanence

# Some research questions

- Is there a difference in quality or uniqueness of what gets published in only e-journals and what gets published in traditional journals?
- Does making reviewers' comments available to readers change the quality of a review?
- What are citation patterns of e-only journals?

# Conclusions

- Electronic transmissions can speed process
- News models being tried
- More information about the peer review process
- Peer review by experts is essential
- Undergoing a time of profound changes to the publication process

# Peer review is essential

- “Despite its limitations, we need it. It is all we have, and it is hard to imagine how we could get along without it.”
  - Arnold S. Relman, past editor, *New England Journal of Medicine*, 1990

# Electronic journals and peer review: URLs

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- The Scientist [http://www.the-scientist.com/yr2000/sep/amber\\_p1\\_000904.html](http://www.the-scientist.com/yr2000/sep/amber_p1_000904.html)
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- NPR: All things considered: <http://www.npr.org/features>